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(54) VOICE MAIL SYSTEM AND STORAGE MEDIUM RECORDING PROGRAM

(57)Abstract:

PROBLEM TO BE SOLVED: To inform a general telephone terminal of the existence of a voice mail message via a gateway and to listen to the voice mail message by the general telephone terminal in an IP telephone system performing bi-directional real time sound communication in an IP packet network.

SOLUTION: If the user of the general telephone terminal is out and an incoming call does not arrive at it at the time of calling the general telephone terminal from the IP telephone terminal thorough a packet network, the gateway and a general telephone network, the gateway transmits a voice mail notice message (the absence of opposite side) to the IP telephone terminal. The IP telephone terminal transmits sound data for voice mail to the gateway. The gateway preserves voice mail data, registers it in a voice mail registration table, calls the general telephone terminal by automatic dialing after a prescribed time passes and reads and transmits voice mail data when the incoming call arrives.

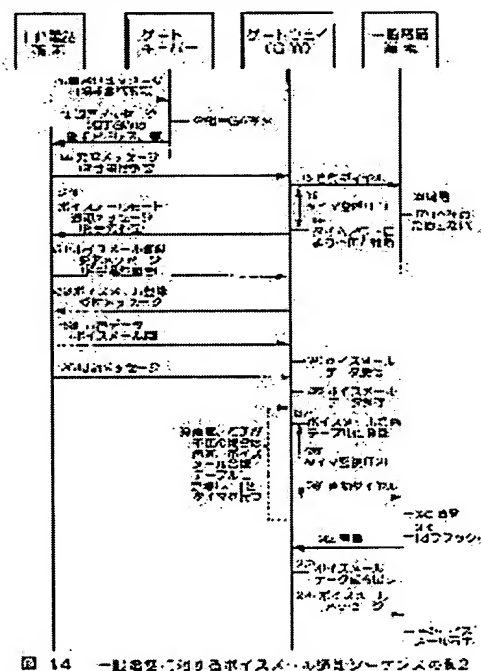


図 14 一般電話に送られるボイスメール送信シーケンスの概略

LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] IP telephone terminal, the gateway, and a gatekeeper are connected to a packet network through a network interface, respectively. A means to transmit the release message which contains the disconnect reason which shows the other party absence to IP telephone terminal when it is the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network and a general phase hand telephone terminal does not receive a message, The voicemail system characterized by having a means to receive voice mail service data from IP telephone terminal, and to save the information about voice mail service data and voice mail service data, and the means which carries out read-out transmission of the voice mail service data saved to the general telephone terminal.

[Claim 2] IP telephone terminal, the gateway, and a gatekeeper are connected to a packet network through a network interface, respectively. It is the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network. The gateway A means to disconnect automatically after fixed time amount when the auto-sent general phase hand telephone terminal does not receive a message, When said general phase hand telephone terminal does not receive a message, it has a means to transmit the release message containing the disconnect reason which shows the other party absence to IP telephone terminal. IP telephone terminal A means to receive the release message containing the disconnect reason which shows the other party absence from the gateway, With a means to ask whether record a voice mail service to a user after release message reception, a means to choose whether voice mail service sound recording is carried out, and the selection signal of voice mail service sound recording A means to transmit the voice mail service registration demand message which contains the phase hand telephone number in a gatekeeper, A means to receive a voice mail service registration reception message from a gatekeeper, It has a means to transmit voice mail service data to a gatekeeper, and a means to transmit a release message to a gatekeeper after voice mail service data transmitting termination. A gatekeeper A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, by means to perform call origination, and said call origination, to a general telephone terminal via the gateway The voicemail system characterized by having a means to transmit said saved voice mail service data to a general telephone terminal via read-out and said gateway when a partner's general telephone terminal receives a message.

[Claim 3] IP telephone terminal, the gateway, a gatekeeper, and a voice mail service server are connected to a packet network through a network interface, respectively. It is the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network. The gateway A means to disconnect automatically after fixed time amount when the auto-sent general phase hand telephone terminal does not receive a message, When said general phase hand telephone terminal does not receive a message, it has a means to transmit the release message containing the disconnect reason which shows the other party absence to IP telephone

terminal. IP telephone terminal A means to receive the release message containing the disconnect reason which shows the other party absence from the gateway, With a means to ask whether record a voice mail service to a user after release message reception, a selection means to choose whether voice mail service sound recording is carried out, and the selection signal of voice mail service sound recording A means to transmit the voice mail service registration demand message which contains the phase hand telephone number in a voice mail service server, A means to receive a voice mail service registration reception message from a voice mail service server, A means to transmit voice mail service data to a voice mail service server, and after voice mail service transmitting termination, It has a means to transmit a release message to a voice mail service server. A voice mail service server A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, by means to perform call origination to a general telephone terminal via the gateway, and said call origination The voicemail system characterized by having a means to transmit said saved voice mail service data to a general telephone terminal via read-out and said gateway when a partner's general telephone terminal receives a message.

[Claim 4] IP telephone terminal, the gateway, and a gatekeeper are connected to a packet network through a network interface, respectively. It is the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network. IP telephone terminal A means to receive the release message containing the disconnect reason which shows a partner absence from the gateway, A means to ask whether record a voice mail service to a user after release message reception, A selection means to choose whether voice mail service sound recording is carried out, and a means to transmit the voice mail service registration message which contains the phase hand telephone number to the gateway with the selection signal of voice mail service sound recording, A means to receive a voice mail service registration reception message from the gateway, It has a means to transmit voice mail service data to the gateway, and a means to transmit a release message to the gateway after voice mail service data transmitting termination. The gateway A means to disconnect automatically after fixed time amount when the auto-sent general phase hand telephone terminal does not receive a message, A means to transmit the release message which contains the disconnect reason which shows the other party absence to IP telephone terminal when said general phase hand telephone terminal does not receive a message, A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, to a general telephone terminal by means to perform call origination by auto calling, and said auto calling The voicemail system characterized by having a transmitting means to transmit said saved voice mail service data to read-out and a general telephone terminal when a partner's general telephone terminal receives a message.

[Claim 5] The voicemail system with which said IP telephone terminal is characterized by being the telephone connected to the general telephone terminal or telephone adapter connected through the personal computer and the common telephone network in the gateway in a voicemail system given in any 1 term of claims 1-4.

[Claim 6] A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, by means to perform call origination to a general telephone terminal via the

gateway, and said call origination Equipment used for the voicemail system characterized by having a means to transmit said saved voice mail service data to read-out and a general telephone terminal when a partner's general telephone terminal receives a message.

[Claim 7] A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, by means to perform call origination to a general telephone terminal via the gateway, and said call origination The gatekeeper characterized by having a means to transmit said saved voice mail service data to a general telephone terminal via read-out and said gateway when a partner's general telephone terminal receives a message.

[Claim 8] A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, by means to perform call origination to a general telephone terminal via the gateway, and said call origination The voice mail service server characterized by having a means to transmit said saved voice mail service data to a general telephone terminal via read-out and said gateway when a partner's general telephone terminal receives a message.

[Claim 9] A means to receive the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, A means to transmit a voice mail service registration reception message to IP telephone terminal, A means to receive voice mail service data from IP telephone terminal, and a means to save the received voice mail service data, A means to register the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, to a general telephone terminal by means to perform call origination by auto calling, and said auto calling The gateway characterized by having a transmitting means to transmit said saved voice mail service data to read-out and a general telephone terminal when a partner's general telephone terminal receives a message.

[Claim 10] IP telephone terminal, the gateway, and a gatekeeper are connected to a packet network through a network interface, respectively. In the record medium which recorded the program about the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network and in which computer read is possible The processing which transmits the release message which contains the disconnect reason which shows the other party absence to IP telephone terminal when a general telephone terminal does not receive a message, The processing which receives voice mail service data from IP telephone terminal, and saves the information about voice mail service data and voice mail service data, The record medium which recorded the program for performing a voice mail service on the computer equipped with the processing which carries out read-out transmission of the voice mail service data to a general telephone terminal and in which computer read is possible.

[Claim 11] IP telephone terminal, the gateway, and a gatekeeper are connected to a packet network through a network interface, respectively. In the record medium which recorded the program about the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network and in which computer read is possible The processing automatically disconnected after fixed time amount progress when the general phase hand telephone terminal which the program about the processing of the gateway in a record medium auto-sent does not receive a message, When said general partner telephone terminal does not receive a message, it has the processing which transmits the release message containing the disconnect reason which shows the other party absence to IP telephone terminal. The processing which receives the release message in which the program about the processing of IP telephone terminal in a record medium contains the disconnect reason which shows the other party absence from the gateway, When it is

chosen the processing which asks whether record a voice mail service to a user after release message reception, and that a user records a voice mail service The processing which transmits the voice mail service registration demand message which contains the phase hand telephone number in a gatekeeper, The processing which receives a voice mail service registration reception message from a gatekeeper, The processing which transmits voice mail service data to a gatekeeper, and after voice mail service transmitting termination, The processing which receives the voice mail service registration demand message in which is equipped with the processing which transmits a release message to a gatekeeper, and the program about the processing of a gatekeeper in a record medium contains the phase hand telephone number from IP telephone terminal, The processing which transmits a voice mail service registration reception message to IP telephone terminal, The processing which receives voice mail service data from IP telephone terminal, and the processing which saves the received voice mail service data, The processing which registers the information about the received voice mail service into a voice mail service registration table, The processing which performs call origination to a general telephone terminal via the gateway based on the data registered into the voice mail service registration table after fixed time amount progress, When a partner's general telephone terminal receives a message by said call origination The record medium which recorded the program for performing a voice mail service on the computer equipped with the processing which transmits said saved voice mail service data to a general telephone terminal via read-out and said gateway and in which computer read is possible.

[Claim 12] IP telephone terminal, the gateway, a gatekeeper, and a voice mail service server are connected to a packet network through a network interface, respectively. In the record medium which recorded the program about the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network and in which computer read is possible The processing automatically disconnected after fixed time amount progress when the general phase hand telephone terminal which the program about the processing of the gateway in a record medium auto-sent does not receive a message, The processing which transmits the release message which contains the disconnect reason which shows the other party absence when said general phase hand telephone terminal does not receive a message to IP telephone terminal, The processing which receives the release message in which the program about the processing of IP telephone terminal in a record medium contains the disconnect reason which shows the other party absence from the gateway, When it is chosen the processing which asks whether record a voice mail service to a user after release message reception, and that a user records a voice mail service The processing which transmits the voice mail service registration demand message containing the phase hand telephone number to a voice mail service server, The processing which receives a voice mail service registration reception message from a voice mail service server, The processing which transmits voice mail service data to a voice mail service server, and after voice mail service transmitting termination, It has the processing which transmits a release message to a voice mail service server. The inside of a record medium, The processing which receives the voice mail service registration demand message in which the program about processing of a voice mail service server contains the phase hand telephone number from IP telephone terminal, The processing which transmits a voice mail service registration reception message to IP telephone terminal, The processing which receives voice mail service data from IP telephone terminal, and the processing which saves the received voice mail service data, The processing which registers the information about the received voice mail service into a voice mail service registration table, The processing which performs call origination to a general telephone terminal via the gateway based on the data registered into the voice mail service registration table after fixed time amount progress, When a partner's general telephone terminal receives a message by said call origination The record medium which recorded the program for performing a voice mail service on the computer equipped with the processing which transmits said saved voice mail service data to a general telephone terminal via read-out and said gateway and in which computer read is possible.

[Claim 13] IP telephone terminal, the gateway, and a gatekeeper are connected to a packet network through a network interface, respectively. In the record medium which recorded the program about the voicemail system with which the general telephone terminal was connected to the gateway through the common telephone network and in which computer read is possible The processing automatically disconnected after fixed time amount progress when the general phase hand telephone

terminal which the program about the processing of the gateway in a record medium auto-sent does not receive a message, The processing which transmits the release message which contains the disconnect reason which shows the other party absence to IP telephone terminal when said general phase hand telephone terminal does not receive a message, The processing which receives the voice mail service registration demand message which contains the phase hand telephone number from IP telephone terminal, The processing which transmits a voice mail service registration reception message to IP telephone terminal, The processing which receives voice mail service data from IP telephone terminal, and the processing which saves the received voice mail service data, The processing which registers the information about the received voice mail service into a voice mail service registration table, Based on the data registered into the voice mail service registration table after fixed time amount progress, by auto calling with the processing which performs call origination by auto calling to a general telephone terminal When a partner's general telephone terminal receives a message, said saved voice mail service data Read-out, The processing which receives the release message in which is equipped with the processing transmitted to a general telephone terminal, and the program about the processing of IP telephone terminal in a record medium contains the disconnect reason which shows the other party absence from said gateway, When it is chosen the processing which asks whether record a voice mail service to a user after release message reception, and that a user records a voice mail service The processing which transmits the voice mail service registration message containing the phase hand telephone number to the gateway, The processing which receives a voice mail service registration reception message from the gateway, The record medium which recorded the program for performing a voice mail service on the computer equipped with the processing which transmits voice mail service data to the gateway, and the processing which transmits a release message after voice mail service transmitting termination in the gateway and in which computer read is possible.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This inventions are IP packet networks, such as the Internet, notify via the gateway existence of the voice mail service message accumulated in the gatekeeper, the mail server, or the gateway in a network to a general telephone terminal, and relate in IP telephone system which performs bidirectional real-time voice communication to the record medium which recorded the program which performs a voice mail service on the voicemail system and the computer in IP telephone system which enables listening of a voice mail service message at a general telephone terminal.

[0002]

[Description of the Prior Art] Application called IP telephone transmitted and received on real time is beginning to spread by using an image and voice as packet data bidirectionally through the packet network of IP base. The example of IP telephone structure of a system packet within the net is shown in drawing 1 . This IP telephone system is constituted when IP telephone terminals A and B and the gatekeeper who have two or more microphones, a loudspeaker, and IP telephone software connect through a packet network.

[0003] The example of the connection sequence of IP telephone terminals is shown in drawing 2 .

An IP address is used for discernment of each IP telephone terminal by IP telephone. An IP address and a port number are used for assignment of a communications partner. As a common IP telephone terminal, there is much what installed IP telephone software in the general-purpose personal computer. In a general-purpose personal computer, a strange good thing also has IP addresses, such as DHCP (dynamic host configuration protocol: protocol for collecting IP addresses for an IP address dynamically at the time of allocation and termination at the time of starting of a client). Then, the alias address used as the IP address in the end of a local and nickname is registered into the server (gatekeeper) which manages the address at the time of IP telephone software starting, and the method of getting to know the IP address of an inquiry and a partner terminal is used for the gatekeeper in the IP address of a partner terminal by the alias address of a partner terminal at the time of call origination.

[0004] The example of IP telephone system configuration between a packet network and a common telephone network is shown in drawing 3 . This IP telephone system connects the gateway through a packet network with IP telephone terminal A and the gatekeeper who have a microphone, a loudspeaker, and IP telephone software, and the gateway is constituted by connecting with a general telephone terminal through a common telephone network. The example of the connection sequence between IP telephone terminal via the gateway and a general telephone terminal is shown in drawing 4 .

[0005] The equipment (gateway) for interconnecting the packet network for IP telephone and a common telephone network is used, and it is <IP telephone terminal A. -(packet network)- Gateway -(common telephone network)- Voice communication between IP telephone terminal and a general telephone terminal can be performed by the system general telephone terminal>. Moreover, it is <general telephone terminal similarly. -(common telephone network)- Gateway -(packet network)- Gateway -(common telephone network)- General telephone terminals can also perform voice communication via a packet network by the system general telephone terminal>. Thus, when using

the gateway, in a gatekeeper, it is common to choose the gateway to be used with the telephone number of the general telephone terminal of a connection place. An IP address is too used for discernment of the gateway packet within the net.

[0006] The example of a configuration of a voicemail system packet within the net is shown in drawing 5 . This voicemail system is constituted by connecting the gatekeeper having the voice mail service preservation section with IP telephone terminals A and B which have two or more microphones, a loudspeaker, and IP telephone software with a packet network. When it closes in between packet networks to drawing 6 , the example of voice mail service preservation / playback sequence is shown.

[0007] The example which carries out call origination is shown in IP telephone terminal B (wearing) from IP telephone terminal A (shot). When IP telephone terminal is a thing using a general-purpose personal computer, telephone IP software is not always started in the general-purpose personal computer. In such a case, a partner terminal cannot be called. Then, IP telephone terminal B registers voice mail service mode to a gatekeeper at the time of IP telephone software termination etc., and to the call of this addressing to IP telephone terminal B, a gatekeeper notifies the purport this whose IP telephone terminal B is in voice mail service mode, and it has service of leaving the voice mail service of this addressing to IP telephone terminal B in the meantime. At this IP telephone terminal B, although again registered with a gatekeeper at the time of the reboot of IP telephone software, at this time, I have it notified that the voice mail service addressed to itself exists, and while having not started IP telephone software, the message recorded as a voice mail service can be heard. Thus, if it is IP telephone terminal packet within the net, it is possible for me to have the voice mail service message which registered voice mail service mode from IP telephone terminal side, and was recorded at the time of mode discharge notified. Moreover, the same thing is possible even if it uses separately the server only for voice mail services from which the gatekeeper itself did not have a function about a voice mail service, but made the voice mail service function in the above-mentioned gatekeeper become independent of. (In this case, a gatekeeper is easy to be the usual thing.) On the other hand, even if a communications partner is the general telephone terminal of the common telephone network twisted to a gateway course, a partner is absent, or when it is during the conversation, the case where he wants to leave a voice mail service exists. (Although it can leave a message to a partner's general telephone terminal if a timed-recording function is in the general telephone terminal of the other party itself in such a case) since all the common telephones connected to the common telephone network do not have a timed-recording function, how to leave a voice mail service also to a general telephone terminal without a timed-recording function is explained as a premise. however, the general telephone terminal via the gateway -- an indeterminate (that correspondence applied to the telephone number of which common telephone network from which gateway is not a meaning.) it is -- it is not realistic that a gatekeeper or the gateway manages all general telephone terminals in a common telephone network. Therefore, it is difficult to deal with the call addressed to a general telephone terminal as voice mail service mode. Moreover, since there will be no method of getting to know existence of a voice mail service from this general telephone terminal side even if it leaves the voice mail service message addressed to a general telephone terminal to a gatekeeper or the gateway, there is a trouble that the saved voice message cannot be heard, from a general telephone terminal.

[0008]

[Problem(s) to be Solved by the Invention] In order to solve the above-mentioned trouble, this inventions are packet networks, such as the Internet, notify existence of the voice mail service message accumulated in the server, the gateway, or the voice mail service server in a network to a general telephone terminal via the gateway, and aim at enabling listening of this voice mail service message at a common terminal.

[0009]

[Means for Solving the Problem] In this invention, it has a network interface (the function which makes dial-up PPP (point-to-point protocol) connection is included in a provider etc. with a modem etc.) in IP telephone terminal, and the personal computer with which IP (internet protocol) telephone software was installed, and the dedicated device with a function equivalent to it are assumed. The block diagram of IP telephone terminal in this invention is shown in drawing 7 .

[0010] IP telephone terminal by the side of the call origination in this invention (the gateway is included) The configuration as a usual IP telephone terminal, i.e., the voice input section and the A/D-conversion section which process voice from a microphone, and the voice coding section, The voice decryption section and the D/A transducer which perform processing made to utter from a loudspeaker, and the voice output section, IP telephone functional control section equipped with the gatekeeper IF (interface) section, It has the voice mail service message IF (interface) section for processing the message about a voice mail service besides communications control section [which performs packet-izing / packet assembly of an I/O signal], network interface section, and device control section [which controls these] **.

[0011] When the general telephone terminal which is the partner of a dispatch place does not receive a message, the gateway by the side of the call in in this invention performs automatic-disconnect processing with a timer etc., and has a means including the reason which shows a phase hand absence in a release message. The block diagram of the gatekeeper by this invention is shown in drawing 8 . The configuration whose gatekeeper by this invention manages the usual terminal and GW (gateway), Namely, a terminal and GW managed table, a terminal and GW retrieval section, the command control section, The communications control section, the network interface section, the device control section that controls these, It has a voice mail service registration table for recording the voice mail service preservation section for saving the voice mail service message IF (interface) section for processing the message about a voice mail service, and voice mail service data at ** etc., and the voice mail service information to notify.

[0012] Moreover, in this invention, it is also possible to use as a voice mail service server which made the above-mentioned voice mail service processing facility become independent of a gatekeeper. (A gatekeeper is easy to be the usual gatekeeper in this case.) In this invention, it is also possible to give the voice mail service processing facility in said gatekeeper to the gateway again. The block diagram of the gateway in this case is shown in drawing 9 .

[0013] In this case, the voice coding section and the A/D-conversion section in which the gateway performs the configuration of the usual gateway, i.e., audio processing, the voice decryption section, and a D/A transducer, IP telephone functional control section which has the gatekeeper IF section, the communications control section which performs packet-izing / packet assembly of an I/O signal, It has a voice mail service registration table for recording the voice mail service message IF section for processing the voice mail service message other than device control section ** which controls each interface section and these, the voice mail service data storage section, and the voice mail service information to notify. (A gatekeeper is easy to be the usual gatekeeper in this case.)

[0014]

[Function] The example of network configuration in this invention is shown in drawing 10 . A network connects a gatekeeper and the gateway equipped with IP telephone terminal and the voice mail service function through a packet network, and a general telephone terminal is constituted by connecting with the gateway through a common telephone network.

(Example 1) Explain using Example 1 of the notice sequence of a voice mail service over the general telephone which showed the notice sequence of a voice mail service using the gatekeeper (drawing 8) who mounted the voice mail service processing facility to drawing 11 , the example of a flow in IP telephone terminal of this invention which showed drawing 12 , and the example of a flow in the gatekeeper who showed drawing 13 .

- (1) IP telephone terminal by the side of call origination transmits the inquiry message containing a partner's telephone number.
- (2) The gatekeeper who received this searches the terminal and GW (gateway) managed table in a self-server with a terminal and GW retrieval section, and answers IP telephone terminal in the answerback message which chooses the suitable gateway and includes the terminal address of the (3) this chosen gateway.
- (4) IP telephone terminal which received this answerback message transmits the call origination message which put in a partner's telephone number to the gateway of the IP address in this answerback message.
- (5) The gateway which received this outgoing message carries out the auto dial of the telephone number in this outgoing message, and (6) partners' general telephone terminal carries out singing. (7)

here -- a partner's general telephone terminal side -- he is absent -- everyone -- the case where there is nothing appearance -- (8) gateways -- T1:watchdog timer time amount -- waiting and (9) time-outs -- a partner -- judge that he is absent, give up connection with a general partner telephone terminal, and answer IP telephone terminal in a release message including (10) partner absent notice information.

(11) At IP telephone terminal which received this release message, acquire the partner absent notice information in this release message, and give an indication (notice) which asks whether put a voice mail service into a user. Here, if actuation in which a user leaves a voice mail service is performed, IP telephone terminal will transmit the voice mail service registration demand message containing a partner's telephone number to a gatekeeper.

(12) The gatekeeper who received this voice mail service registration demand message answers IP telephone terminal in a voice mail service registration reception message.

(13) IP telephone terminal which received this voice mail service registration reception message answers a gatekeeper by using as voice mail service data voice inputted by the user.

(14) He relates with information, such as (17) partners' telephone number, and an IP address of the gateway, and registers information into a voice mail service registration table while he saves (16) this voice mail service data in the voice mail service data storage section, when a gatekeeper receives these voice mail service data and receives the release message from (15) IP telephone terminal. (18) A gatekeeper transmits the call origination message containing the partner telephone number to the T2:(19) gateway after timer time amount further.

(20) The gateway which received this call origination message carries out the auto dial of the telephone number in this outgoing message, and (21) partners' general telephone terminal carries out singing.

(22) Here, if a partner does off-hook by the general partner telephone terminal side, the gateway which (23) terminating signals were sent to the gateway and received (24) this terminating signal will answer a gatekeeper in a connection message.

(25) the voice mail service message which had recorded the gatekeeper who received this connection message on the voice mail service data storage section on the voice mail service registration table -- read-out and the voice mail service message IF section -- minding -- (26) -- transmit this to the gateway.

(27) After the gateway which received these voice mail service data passes the voice guidance of a purport which transmits the voice mail service currently recorded, it changes the this received voice mail service data into analog voice, and transmits them to the general telephone terminal under communication link.

(28) Consequently, at a general telephone terminal, voice mail service data are reproduced as voice. [0015] Moreover, also at the time of the 2nd auto dial, when a partner is absent, it is too judged by T1 timer that he is absent, and a release message is answered by the gatekeeper from the gateway. In this case, it registers with a voice mail service registration table again, and a call origination message is again transmitted to the gateway after T2 timer. In addition, the same effectiveness is acquired also when the voice mail service server which made only the processing facility about a voice mail service become independent is used from a gatekeeper here.

(Example 2) Explain the notice sequence of a voice mail service using the gateway (drawing 9) which mounted the voice mail service processing facility using Example 2 of the notice sequence of a voice mail service over the general telephone of drawing 14 .

[0016] The gateway is the same as the sequence ((1) - (9)) of Example 1 until it carries out an auto dial to a general telephone terminal, after call origination message receiving from IP telephone terminal.

(30) By the time-out of T1 timer, the gateway judged that a partner is absent answers a letter in a voice mail service mode informative message including phase hand absent information. At IP telephone terminal which received this voice mail service mode informative message, the phase hand absent information in this release message is acquired, and an indication which asks whether put a voice mail service into a user is given.

(31) Here, if actuation in which a user leaves a voice mail service is performed, IP telephone terminal will transmit the voice mail service registration demand message containing the partner

telephone number to the gateway.

(32) The gateway which received this voice mail service registration demand message answers IP telephone terminal in a voice mail service registration reception message.

(33) Transmit to the gateway IP telephone terminal which received this voice mail service registration reception message by using as voice mail service data voice inputted by the user.

(34) Relate it with (37) partners' telephone number, and it registers information into a voice mail service registration table while it saves (36) this voice mail service data in the voice mail service data storage section, when the gateway receives this voice mail service and receives the release message from (35) IP telephone terminal. (38) Further, the gateway carries out the auto dial of the (39) phase hand telephone number after T2:timer time amount, and (40) partners' general telephone terminal carries out singing.

(41) The gateway which (42) terminating signals were sent to the gateway and received (43) this terminating signal here when the partner did off-hook by the general partner telephone terminal side. The voice mail service data currently recorded on the voice mail service data storage section on the voice mail service registration table Read-out, (44) -- after passing the voice guidance of a purport which transmits the voice mail service currently recorded, these voice mail service data that carried out reading appearance are changed into analog voice, and it transmits to the general telephone terminal under communication link.

(45) Consequently, at a general telephone terminal, voice mail service data are reproduced as voice. [0017] Moreover, also at the time of the 2nd auto dial, when a partner is absent, it is too judged by T1 timer that he is absent. In this case, it registers with a voice mail service registration table again, and an auto dial is again made to a general partner telephone terminal after T2 timer. Thus, even if it is the case which was absent at a phase hand's general telephone terminal, it becomes realizable to tell the user of a general telephone terminal the voice mail service data recorded from IP telephone terminal.

[0018]

[Example] The 1st example of the voicemail system which starts this invention at drawing 15 is shown. This example is an example in the case of saving voice mail service data in a gatekeeper using what installed IP telephone software in the general-purpose personal computer as an IP telephone terminal. A voicemail system connects to a packet network IP telephone terminal (1501), the gatekeeper (1502), and the gateway (1503) which have a microphone (1504) and a loudspeaker (1505) and which are a general-purpose personal computer, and there are a voice mail service registration table (1506) and the voice mail service data storage section (1507) in the interior of a gatekeeper (1502), and a general telephone terminal is constituted by connecting with the gateway (1503) through a common telephone network.

[0019] In this voicemail system, a general phase hand telephone terminal (1508) shall be called at IP telephone terminal (1501). The procedure of saving voice mail service data in a gatekeeper is shown below.

(1) At IP telephone terminal (1501), input the telephone number "03-5353-2694" of a general phase hand telephone terminal (1508), and perform call origination actuation. IP telephone terminal (1501) transmits the inquiry packet containing the inputted telephone number "03-5353-2694" to a gatekeeper (1502).

(2) The gatekeeper (1502) who received this inquiry packet searches the terminal and GW (gateway) managed table in a self-gatekeeper, chooses the gateway (1503) as the connection place gateway, and answers IP telephone terminal (1501) in an answerback packet including the IP address of this gateway (1503).

(3) This reply packet was received. IP telephone terminal (1501) transmits the call origination packet containing the partner telephone number "03-5353-2694" to the gateway of the IP address in this reply packet, i.e., the gateway, (1503).

(4) The gateway which received this call origination packet carries out the auto dial of the telephone number in this call origination packet, i.e., the telephone number of a general telephone terminal (1508), and a general telephone terminal (1508) carries out singing. However, there is no timed-recording function in a general telephone terminal (1508), and a user is also absent and nobody.

(5) Although it waits for the gateway (1503) only for T 1 second, give up connection after T 1-

second progress, and answer a letter in a release message including a partner absent notice to IP telephone terminal (1501) (a timer T1 enables setting modification in the gateway (1503)). IP telephone terminal (1501) which received this release message displays the purport that a partner is absent on a screen, and displays the message which asks whether to record a voice mail service.

(6) Here, if a user chooses record of a voice mail service, IP telephone terminal (1501) will transmit the voice mail service registration demand message which included the IP address of the partner telephone number "03-5353-2694" and the connection place gateway (1503) in the gatekeeper (1502).

(7) The gatekeeper (1502) who received this voice mail service registration demand message answers IP telephone terminal (1501) in a voice mail service registration reception message.

(8) At IP telephone terminal (1501) which received this voice mail service registration demand message, a user inputs the voice-told message which it leaves as a voice mail service from a microphone (1504). The inputted voice is changed into voice data and transmitted to a gatekeeper (1502).

(10) A gatekeeper (1502) receives this voice data. After the input of the voice for voice mail services is completed at IP telephone terminal (1501), IP telephone terminal (1501) transmits a release message to a gatekeeper (1502).

(11) The gatekeeper (1502) who received this release message saves the received voice mail service data in the voice mail service data storage section (1507), and registers information, such as the partner telephone number, into a voice mail service registration table (1506). A gatekeeper (1502) transmits the call origination message containing the this acquired telephone number "03-5353-2694" to the gateway (1503) which is the IP address which acquired and this acquired the telephone number and the IP address which should be connected from a voice mail service registration table (1506) after [of T] 2 seconds (a timer T2 enables setting modification by the gatekeeper (1502)).

(13) Carry out the auto dial of the gateway (1503) which received this call origination message to the telephone number in this call origination message "03-5353-2694", and a general telephone terminal (1508) carries out singing. Shortly, arrival-of-the-mail actuation is made at a general telephone terminal (1508).

(14) The gateway (1503) linked to a general telephone terminal (1508) answers a gatekeeper (1502) in a connection message. The gatekeeper (1502) who received this connection message transmits the recorded voice mail service data to read-out and the gateway (1503) from the voice mail service data storage section (1507).

(15) The gateway (1503) which received these voice mail service data changes these voice mail service data into analog voice, and pours them to a general telephone terminal (1508).

(16) Consequently, at a general telephone terminal (1508), the voice mail service data which IP telephone terminal (1508) recorded on the gatekeeper (1502) are reproduced.

[0020] The 2nd example of the voicemail system which starts this invention at drawing 16 is shown. This example is an example in the case of recording a voice mail service from a general telephone terminal by the case where a voice mail service server performs processing of voice mail service data. Gateway A (1601), a gatekeeper (1602), and Gateway B (1603) and a voice mail service server (1604) are connected to a packet network, and, as for this voicemail system, there are a voice mail service registration table (1605) and the voice mail service data storage section (1606) in the interior of a voice mail service server (1604), and the general telephone terminals A and B are constituted by connecting with Gateways A and B through a common telephone network.

[0021] In this voicemail system, the procedure of calling the general telephone terminal B (1608) from the general telephone terminal A (1607) is shown below.

(1) Dial the telephone number "0468-59-2222" of the gateway A (1601) which is the familiar gateway at the general telephone terminal A (1607) which is the telephone number "0468-59-1111." Since the input of the partner telephone number of a connection place is required after Gateway A (1601) carries out automatic incoming connection, it is the general telephone terminal A (1607) here. The telephone number "03-5353-2694" of the general phase hand telephone terminal B (1608) is dialed.

(2) The gateway A (1601) which received this number transmits the inquiry packet containing the telephone number "03-5353-2694" of the phase hand who received to a gatekeeper (1602).

- (3) The gatekeeper (1602) who received this inquiry packet searches the terminal and GW (gateway) managed table in a self-gatekeeper, chooses Gateway B (1603) as the connection place gateway, and answers Gateway A (1601) in an answerback packet including the IP address of this gateway B (1603).
- (4) The received gateway A (1601) transmits the call origination packet containing the partner telephone number "03-5353-2694" to the gateway B of the IP address in this reply packet, i.e., the gateway, (1603).
- (5) The gateway B (1603) which received this call origination packet carries out the auto dial of the telephone number in this call origination packet, i.e., the telephone number of the general telephone terminal B (1608), "03-5353-2694", and the general telephone terminal B (1608) carries out singing. However, there is no timed-recording function in the general telephone terminal B (1608), and a user is also absent, and nobody comes out.
- (6) Although it waits for Gateway B (1603) only for T 1 second, give up connection after T 1-second progress, and answer a letter in a release message including phase hand absent information to Gateway A (1601) (a timer T1 makes a change possible in Gateway B (1603)).
- (7) The gateway A (1601) which received this release message has an absent partner, and pass voice guidance whether to record a voice mail service, to the connected general telephone terminal A (1607).
- (8) Here, if a user remains as it is, Gateway A (1601) will transmit the voice mail service registration demand message which contained the phase hand telephone number "03-5353-2694" in the voice mail service server (1604) (when a user does not want to record a voice mail service, on hook is carried out as it is, and the general telephone terminal A (1607) cuts.).
- (9) The voice mail service server (1604) which received the voice mail service registration reception message answers Gateway A (1601) in a voice mail service registration reception message. (The gateway A (1601) which received (10) this voice mail service registration reception message passes the tone which shows that the sound recording of a voice mail service was attained to the connected general telephone terminal A (1607).)
- (11) After the signal, the voice with which the user talked at the general telephone terminal A (1607) is changed into voice data in Gateway A (1601), and is transmitted to a voice mail service server (1604).
- (12) A voice mail service server (1604) receives this voice data.
- (13) If the input of the voice for voice mail services is ended at the general telephone terminal A (1607) and actuation on hook is carried out, while cutting the communication link with Gateway A (1601), transmit a release message to a voice mail service server (1604).
- (14) The voice mail service server (1604) which received this release message saves the received voice mail service data in the voice mail service data storage section (1606), and registers information, such as the partner telephone number, into a voice mail service registration table (1605).
- (15) A voice mail service server (1604) transmits the call origination message containing the this acquired telephone number "03-5353-2694" to the gateway B (1603) which is the IP address which acquired and this acquired the IP address of the telephone number which should be connected from a voice mail service registration table (1605), and the gateway after [of T] 2 seconds (a timer T2 enables setting modification with a voice mail service server (1604)).
- (16) Carry out the auto dial of the gateway B (1603) which received this call origination message to the telephone number in this call origination message "03-5353-2694", and the general telephone terminal B (1608) carries out singing.
- (17) Shortly, arrival-of-the-mail actuation is made at the general telephone terminal B (1608). The gateway B (1603) linked to the general telephone terminal B (1608) answers a voice mail service server (1604) in a connection message.
- (18) The voice mail service server (1604) which received this connection message transmits the recorded voice mail service data to read-out and Gateway B (1603) from the voice mail service data storage section (1606).
- (19) The gateway B (1603) received by these voice mail service data changes these voice mail service data into analog voice, and pours them to the general telephone terminal B (1608).

(20) Consequently, at the general telephone terminal B (1608), the voice mail service data which the general telephone terminal A (1607) recorded on the voice mail service server (1604) via gateway A (1601) are reproduced.

[0022] The 3rd example of the voicemail system which starts this invention at drawing 17 is shown. This example is an example in the case of saving voice mail service data in the gateway as an IP telephone terminal using what connected telephone to the telephone adapter. This voicemail system connects the gateway (1703) to a packet network with IP telephone terminal (1701) and a gatekeeper (1702). IP telephone terminal (1701) Common telephone (1705) is connected and constituted to terminal-connection equipment (1704) (terminal-connection equipment (1704) has the packet network IF). Inside the gateway (1703) which is equipment which connects common telephone and functions as an IP telephone, a voice mail service registration table (1706), There is the voice mail service data storage section (1707), and a general telephone terminal (1708) is constituted by connecting with the gateway (1703) through a common telephone network.

[0023] In this voicemail system, a general telephone terminal (1708) shall be called from IP telephone terminal (1701).

(1) Dial the telephone number "03-5353-2694" of general phase hand telephone (1708) by the common telephone (1705) connected to the terminal-connection equipment (1704) which is IP telephone terminal (1701). IP telephone terminal (1701) transmits the inquiry packet containing a phase hand's dialed telephone number "03-5353-2694" to a gatekeeper (1702).

(2) The gatekeeper (1702) who received this inquiry packet searches the terminal and GW (gateway) managed table in a self-gatekeeper, and is the connection place gateway. The gateway (1703) is chosen and terminal-connection equipment (1704) is answered to the gateway of the IP address of this gateway (1703), i.e., the gateway, (1703) in the answerback packet containing a phase hand number "03-5353-2694."

(3) The terminal-connection equipment (1704) which received this reply packet transmits the call packet of the IP address in this reply packet.

(4) The gateway which received this call origination packet carries out the auto dial of the telephone number in this call origination packet, i.e., the telephone number of common telephone (1708), and common telephone (1708) carries out singing. However, there is no timed-recording function in a general telephone terminal, and a user is also absent and nobody.

(5) Although it waits for the gateway (1703) only for T 1 second, give up connection after T1 progress and answer a letter to terminal-connection equipment (1704) in a voice mail service informative message including phase hand absent information (a timer T1 enables setting modification in the gateway (1703)).

(6) The terminal-connection equipment (1704) which received this voice mail service informative message has an absent partner, and pass voice guidance whether to record a voice mail service, to the connected common telephone (1705).

(7) here, if a user comes out as it is and there is, terminal-connection equipment (1704) will transmit the voice mail service registration demand message containing the partner telephone number "03-5353-2694" to the gateway (1703) (the case where a user does not want to record a voice mail service -- as it is -- on hook one -- it cuts).

(8) The gateway (1703) which received this voice mail service registration demand message answers terminal-connection equipment (1704) in a voice mail service registration reception message.

(9) The terminal-connection equipment (1704) which received this voice mail service registration reception message passes the tone which shows that the sound recording of a voice mail service was attained to the connected common telephone (1705). After the signal, the voice with which the user talked by common telephone (1705) is changed into voice data with terminal-connection equipment (1704), and is transmitted to the gateway (1703).

(10) The gateway (1703) receives this voice data. If the input of the voice for voice mail services is completed by common telephone (1705) and actuation on hook is carried out, terminal-connection equipment (1704) will transmit a release message to the gateway (1703).

(11) The gateway (1703) which received this release message saves the received voice mail service data in the voice mail service data storage section (1707), and registers information, such as the phase hand telephone number, into a voice mail service registration table (1706).

(12) After [of T] 2 seconds, the gateway (1703) acquires the telephone number which should be connected from a voice mail service registration table (1706), it carries out an auto dial to the this acquired telephone number "03-5353-2694", and common telephone (1708) carries out singing (a timer T2 enables setting modification in the gateway (1703)).

(13) Shortly, arrival-of-the-mail actuation is made by common telephone (1708). The gateway (1703) linked to a general telephone terminal (1708) changes the recorded voice mail service data into read-out and analog voice from the voice mail service data storage section (1707), and pours them to common telephone (1708).

(14) Consequently, at a general telephone terminal (1708), the voice mail service data which IP telephone terminal (1701) recorded on the gateway (1702) are reproduced.

[0024] In the above-mentioned example, even if it uses a cellular-phone terminal as a general telephone terminal and uses a cellular-phone network as a common telephone network, it functions similarly. Moreover, the gateway of the voicemail system of this invention, a voice mail service server, a gatekeeper, etc. are constituted from an I/O device and a computer which has CPU, memory, etc., the program recorded on the record medium which can machine read CD-ROM, a magnetic disk, semiconductor memory, etc. is read by computer, actuation of a computer is controlled and each component in the gestalt of the above-mentioned operation on a computer is realized.

[0025]

[Effect of the Invention] If this invention is used as explained above, packet networks, such as the Internet, will notify existence of the voice mail service message accumulated in the server, the gateway, or the voice mail service server in a network to a general telephone terminal via the gateway, and it will become possible to hear a voice mail service message at a general telephone terminal.

[Translation done.]

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] Drawing showing the example of a system configuration of IP telephone packet within the net.

[Drawing 2] The sequence chart which shows handshaking of IP telephones.

[Drawing 3] Drawing explaining the example of the communication link by IP telephone between a packet network and a common telephone network.

[Drawing 4] The sequence chart which shows IP telephone via the gateway, and handshaking between common terminals.

[Drawing 5] Drawing showing the example of a configuration of a voicemail system packet within the net.

[Drawing 6] The sequence chart which shows voice mail service preservation / playback procedure at the time of closing within the net [packet].

[Drawing 7] The block diagram of IP telephone terminal by this invention.

[Drawing 8] The block diagram of the gatekeeper of this invention.

[Drawing 9] The block diagram of the gateway of this invention.

[Drawing 10] Drawing showing the example of a configuration of the network in this invention.

[Drawing 11] The sequence chart which shows Example 1 of the notice sequence of a voice mail service over a general telephone.

[Drawing 12] The flow chart which shows an example of the flow in IP telephone terminal of this invention.

[Drawing 13] The flow chart which shows an example of the flow in the gatekeeper of this invention.

[Drawing 14] The sequence chart which shows Example 2 of the notice sequence of a voice mail service over a general telephone.

[Drawing 15] The block diagram showing the 1st ***** of this invention.

[Drawing 16] The block diagram showing the 2nd ***** of this invention.

[Drawing 17] The block diagram showing the 3rd ***** of this invention.

[Description of Notations]

1501 1701 IP telephone terminal

1502, 1602, 1702 Gatekeeper

1503, 1601, 1603, 1703 Gateway

1504 Microphone

1505 Loudspeaker

1506, 1605, 1706 Voice mail service registration table

1507, 1606, 1707 Voice mail service data storage section

1508, 1607, 1608, 1708 General telephone terminal

1604 Voice Mail Service Server

1704 Telephone Adapter (Terminal-Connection Equipment)

1705 Telephone

[Translation done.]

* NOTICES *

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2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]

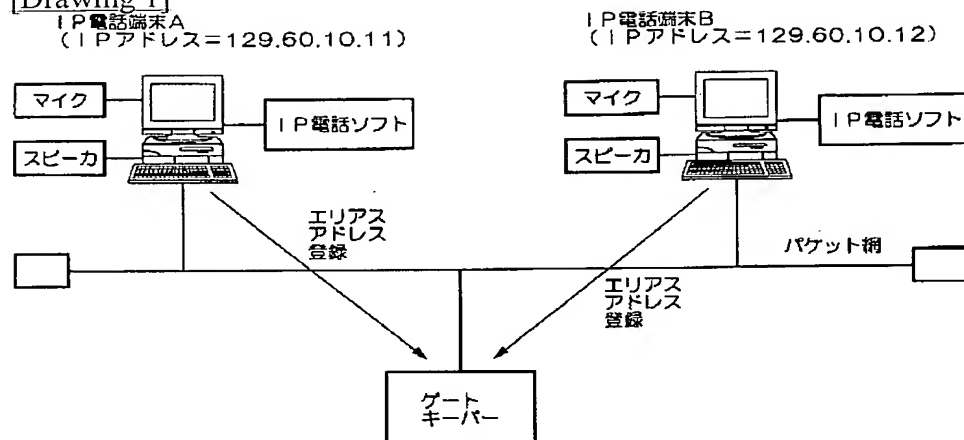


図 1 パケット網内におけるIP電話システム構成例

[Drawing 2]

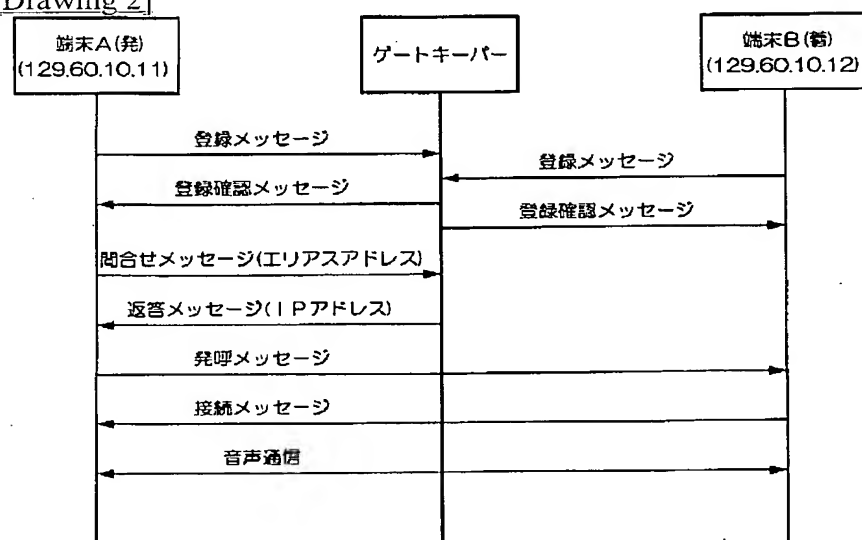


図 2 IP電話端末同士の接続シーケンスの例

[Drawing 3]

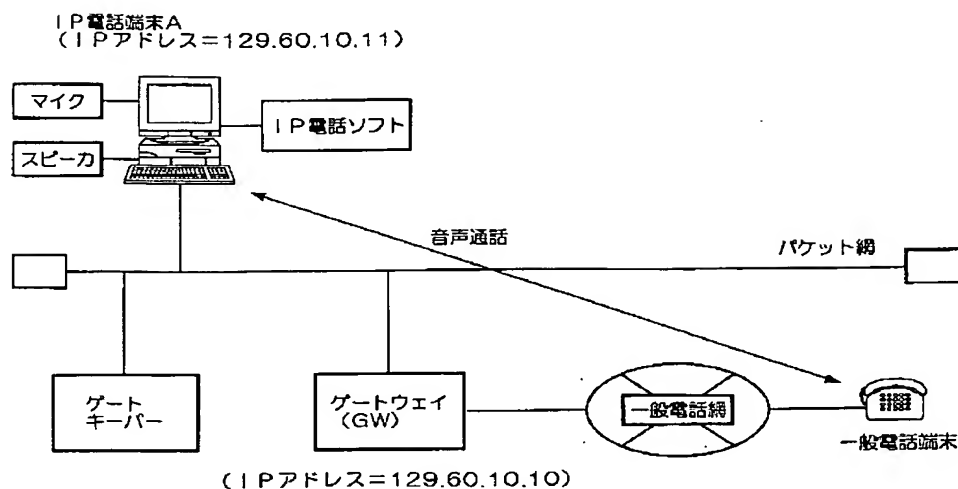


図 3 パケット網と一般電話網間でのIP電話システム構成例

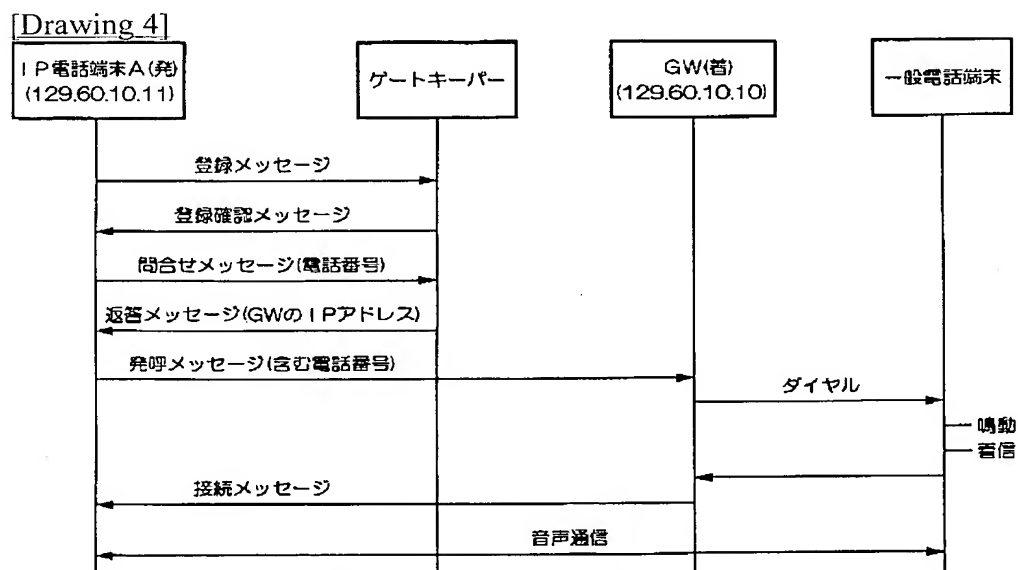


図 4 ゲートウェイ経由のIP電話端末と一般電話端末間の接続シーケンスの例

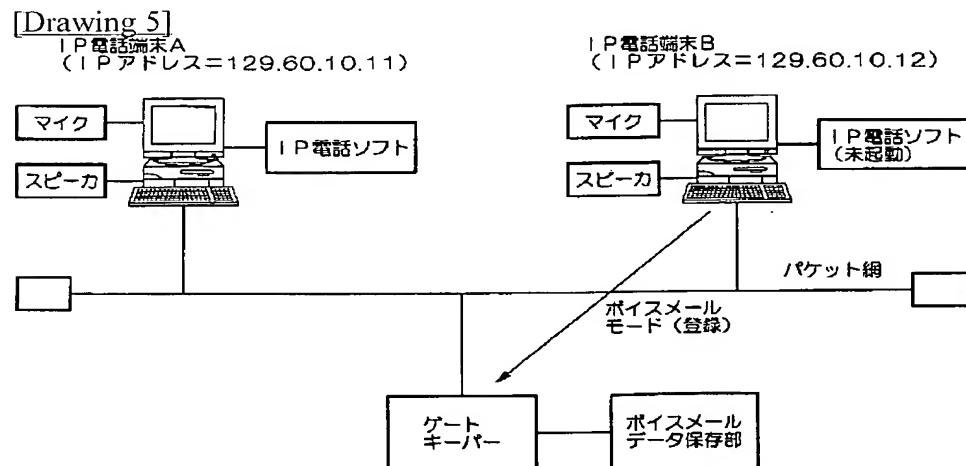
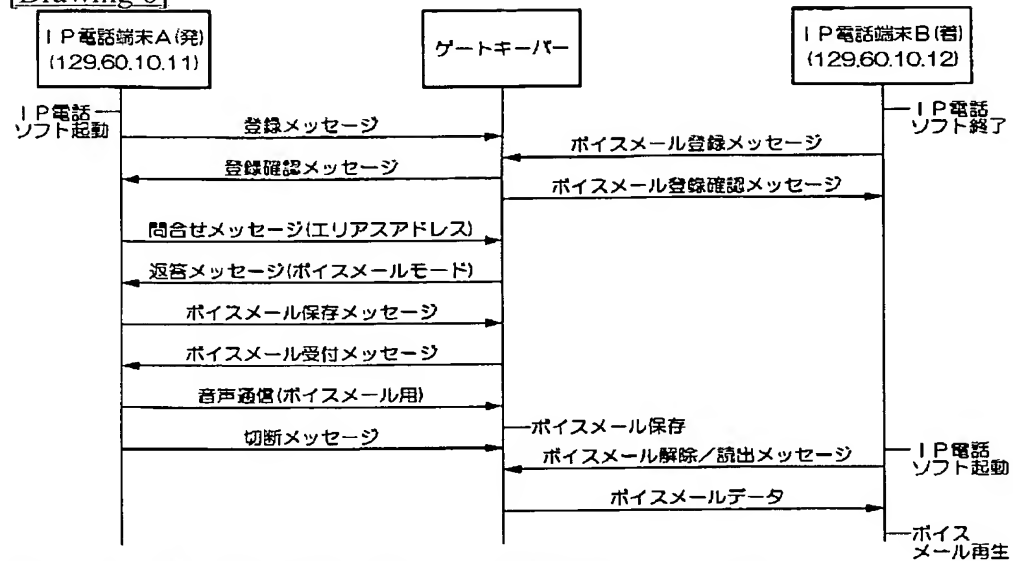
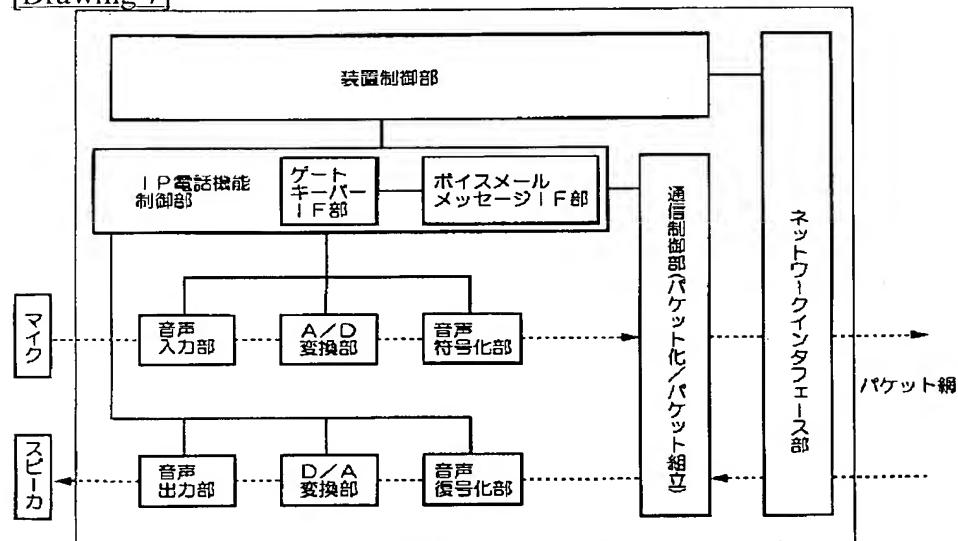


図 5 パケット網内のボイスメールシステムの構成例

[Drawing 6]



[Drawing 7]



[Drawing 8]

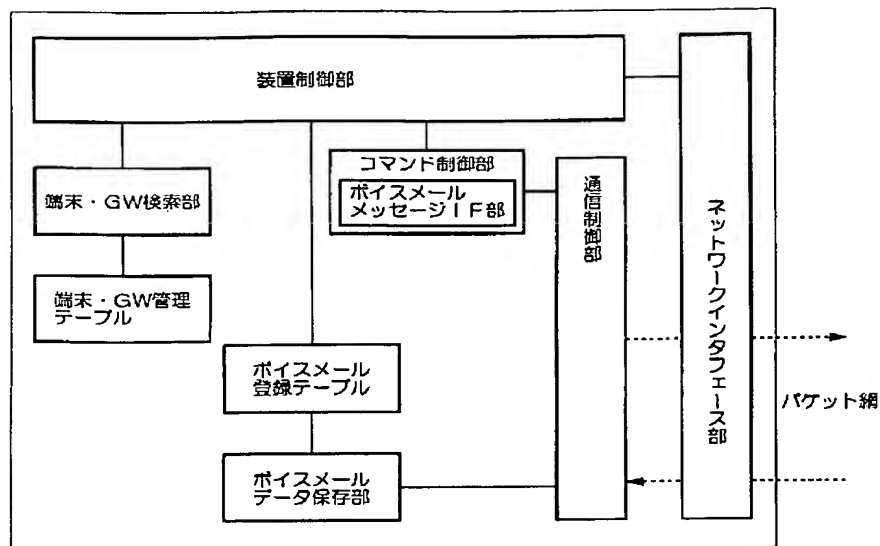


図 8 本発明によるゲートキーパーのブロック図

[Drawing 9]

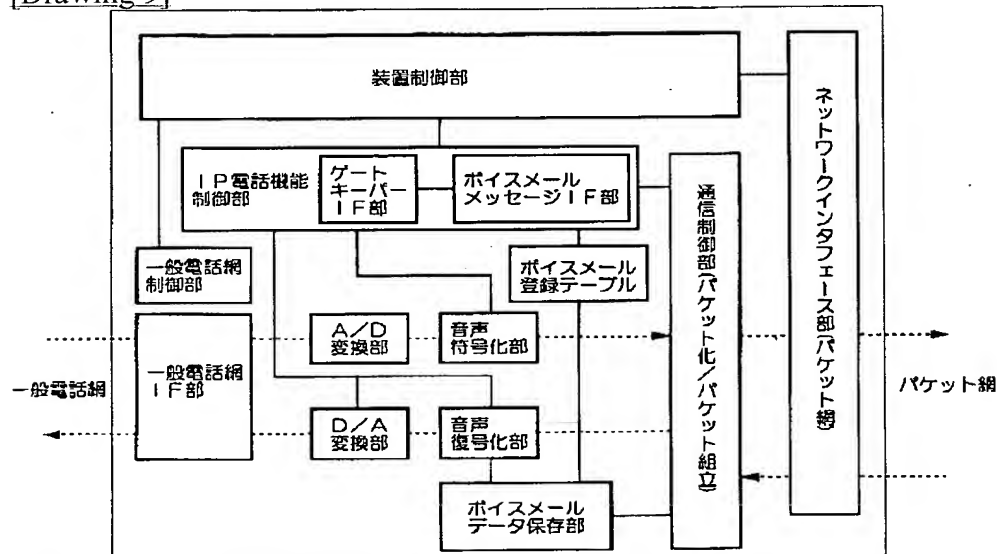


図 9 本発明によるゲートウェイのブロック図

[Drawing 10]

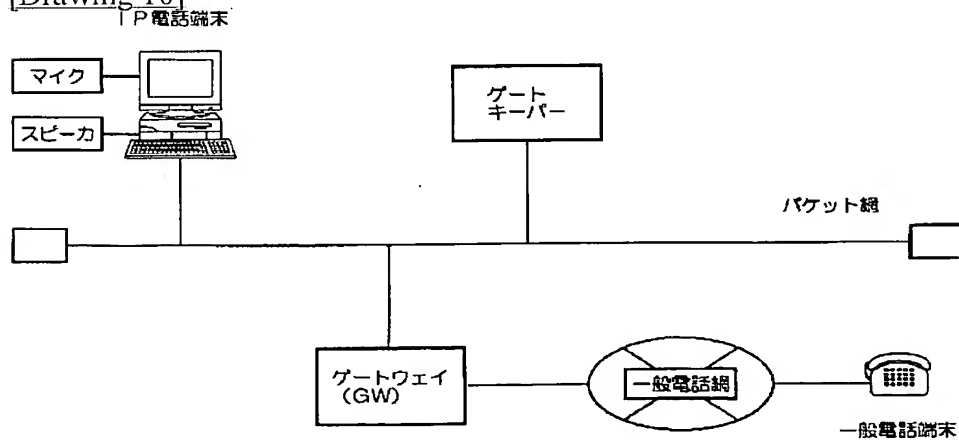


図 10 本発明におけるネットワーク構成例

[Drawing 12]

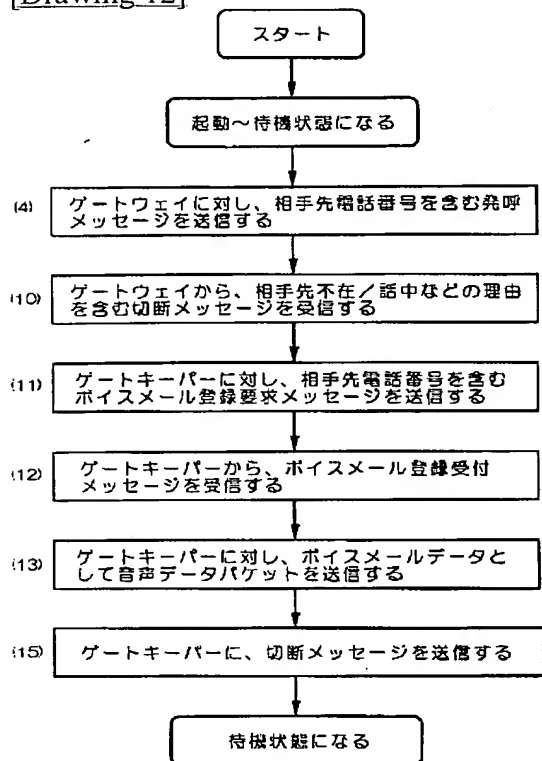


図 12 本発明のIP電話端末におけるフロー例

[Drawing 13]

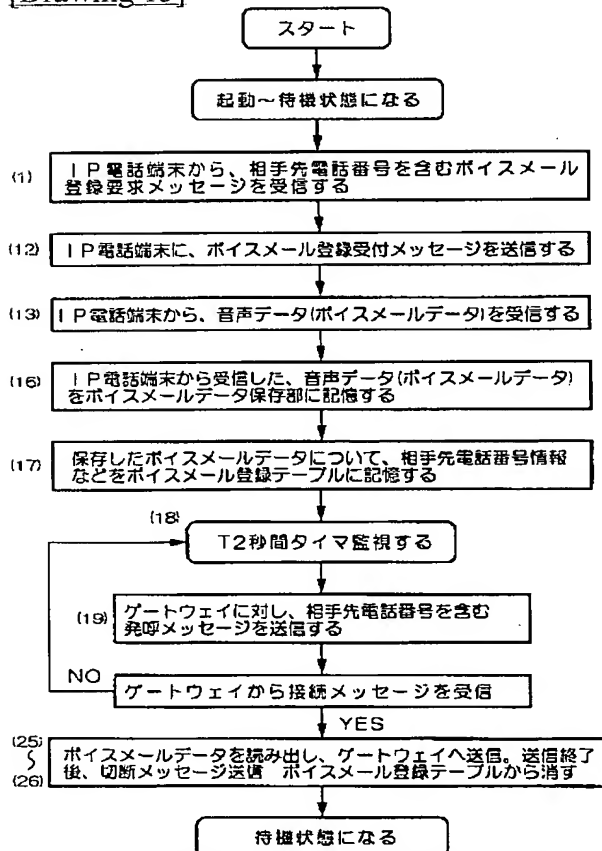


図 13 本発明のゲートキーパーにおけるフロー例

[Drawing 11]

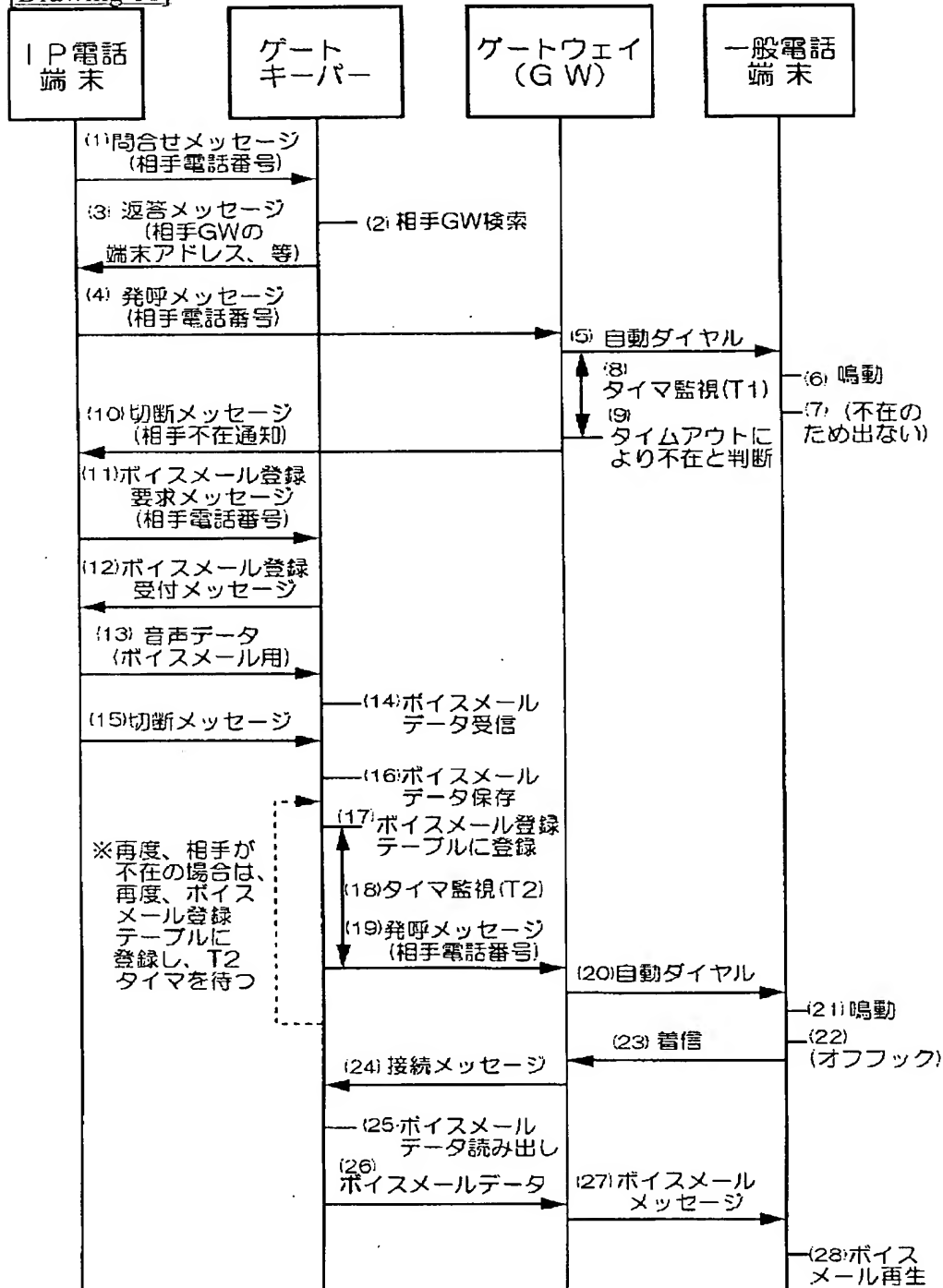


図 11 一般電話に対するボイスメール通知シーケンスの例 1

[Drawing 14]

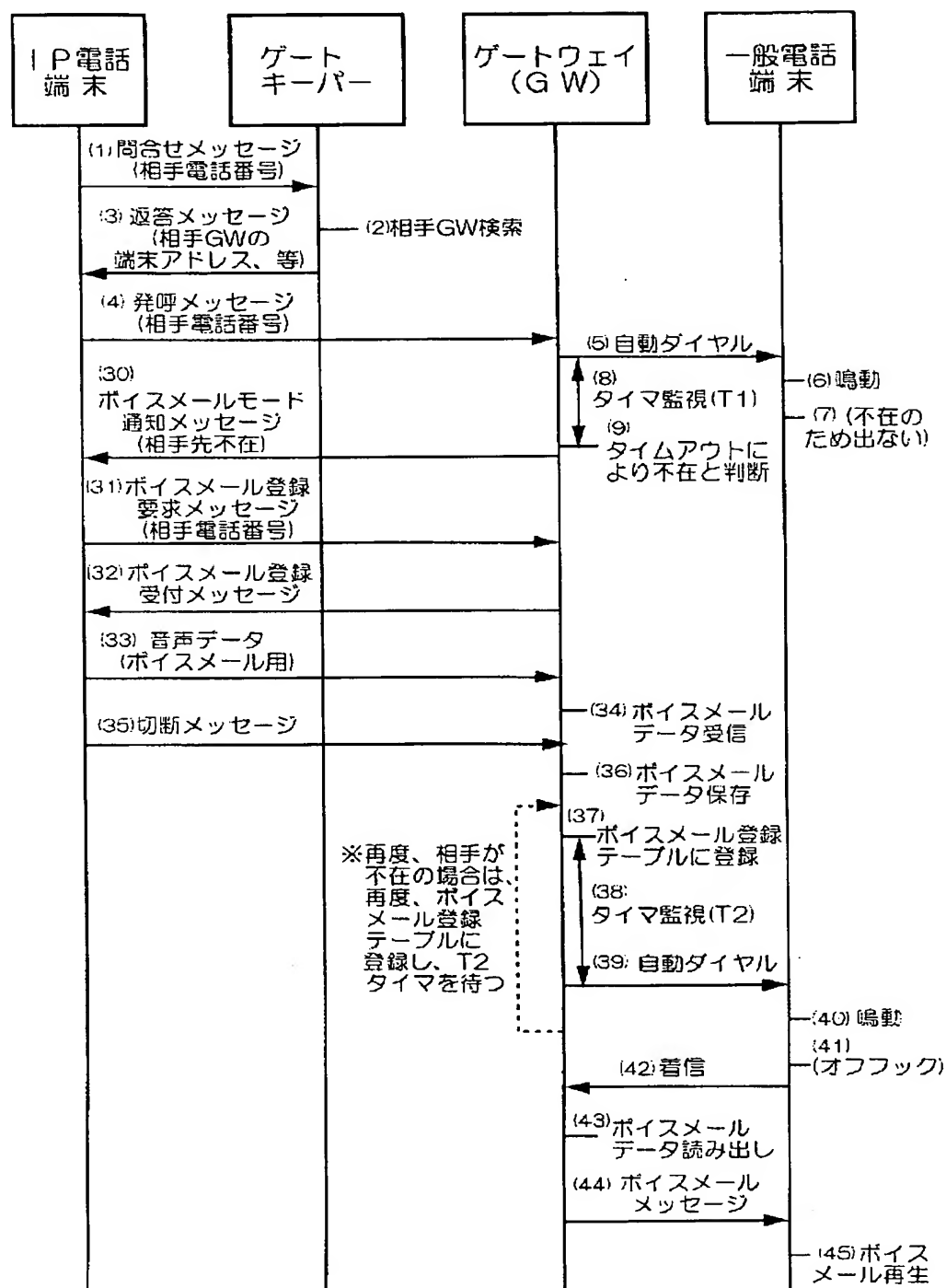


図 14 一般電話に対するボイスメール通知シーケンスの例2

[Drawing 15]

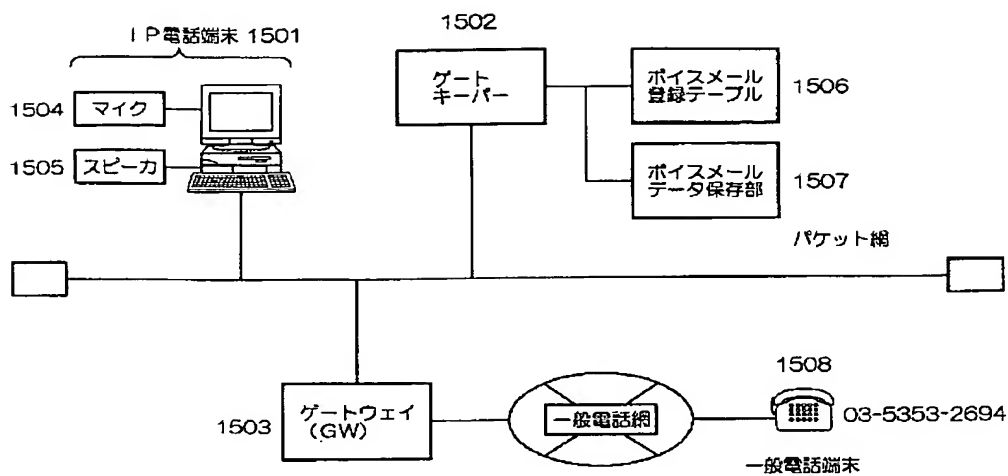


図 15 本発明の第1の実施例

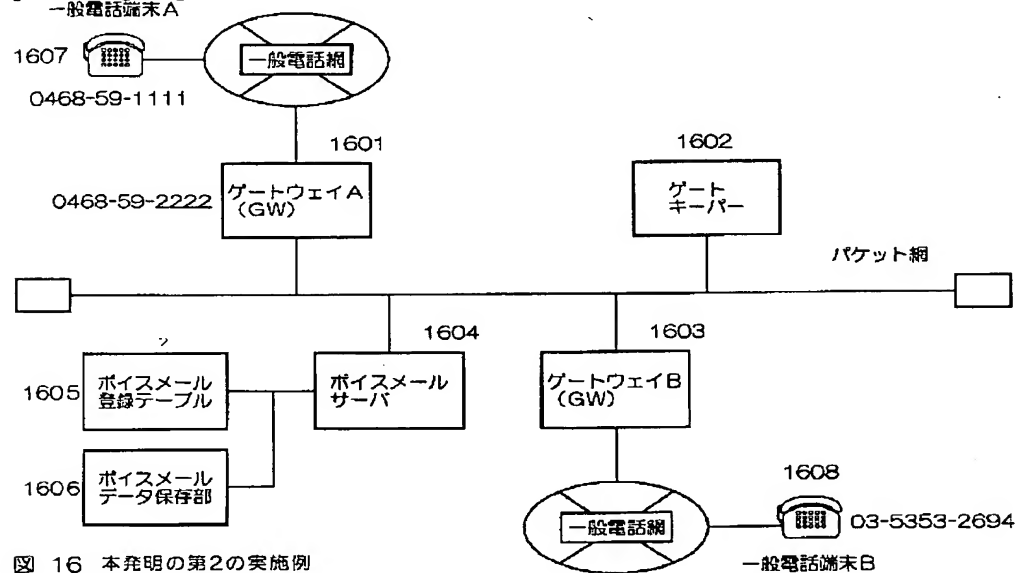
[Drawing 16]
一般電話端末A

図 16 本発明の第2の実施例

[Drawing 17]

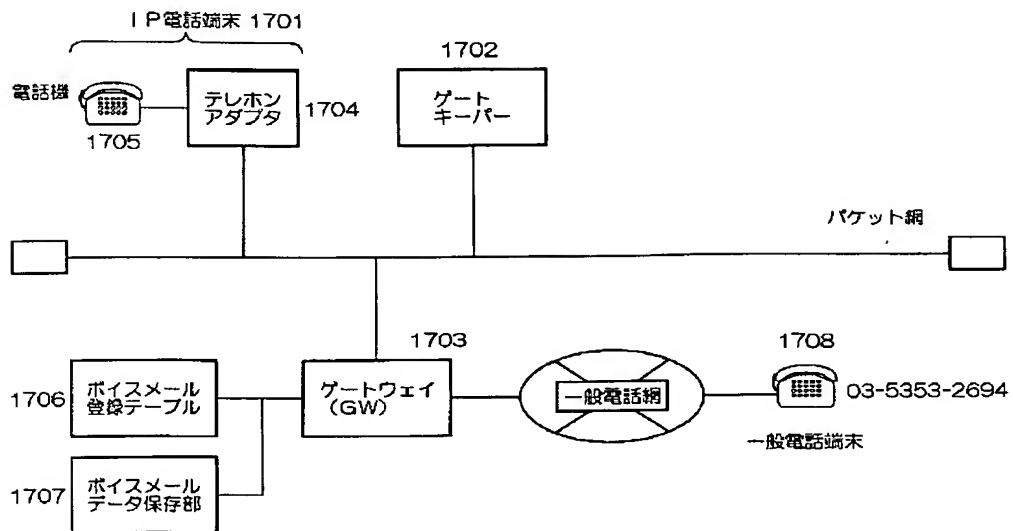


図 17 本発明の第3の実施例

[Translation done.]